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SCIENCE AND IMMORTALITY: A REPLY.

BY W. H. MALLOCK.

LAST June, in the pages of this REVIEW, there appeared an article by Dr. J. Sanderson Christison, which aimed at showing the futility of all scientific objections to a belief in the immortality of the individual mind or life; and not that only, but to establish the contrary position also, that the facts of science exhibit its immortality as certain. I propose here briefly to examine Dr. Christison's arguments, not because I quarrel with the conclusion which he desires to reach; but because the manner in which he attempts to reach it is calculated to discredit it among those to whom he would commend it as reasonable.

His conclusion, as expressed by himself, takes the following form. The individual life or mind, whether in the single cell or in man's brain, is a hyperphysical entity, which enters the organism from without, animates it, uses it, and, when it decays, deserts it, but has no more connection with it than the fiddler has with his fiddle, or than the man who rings an electric bell has with the wire and battery. As to the human brain in particular, Dr. Christison winds up with observing: "Its various organized channels normally bear some correspondence of a 'press the button' order in relation to the activities of the mind: but it appears that it is only a conditional or cultivated correspondence. It is merely the relationship of master to servant." The servant decays and dies. The master—the independent entity—departs elsewhere, "retaining its own integrity."

This conclusion Dr. Christison seeks to establish by four lines of argument, which I will summarize in general terms.

(1) There is, no doubt, a certain uniformity in nature, to which the independence and immortality thus ascribed to the individual mind may seem at first sight to offer an unbelievable

exception. And it is exceptional, no doubt—exceptional to a unique degree: but it is not, for that reason, any the less likely: “for nature,” says Dr. Christison, “is constantly presenting us with exceptional phenomena which we can neither deny nor explain”—such, for instance, as “five-legged quadrupeds, albinos among negroes,” and so forth: “and if an exception is possible at all, it is possible anywhere, and at any time . . . for, while we know what we expect, nothing is more certain than that we never know that what we expect will happen.”

(2) The reason why such an exception as that of a multitude of individual minds “pressing the buttons” of nature, but not otherwise connected with it, seems to many so unlikely is the ridiculous overestimate of science that has prevailed during the last half-century. “Science,” says Dr. Christison, “which has been defined as classified knowledge, is more correctly defined as the imperfect classification of imperfect knowledge”: for even the sciences which are supposed to exhibit the uniformities of nature on the most imposing scale really present us with a spectacle of irregular breaks or gaps. This fact, he says, is specially illustrated by geology, which, having for years been regarded as revealing to us an orderly sequence of phenomena, is now admitted by the foremost authorities of to-day to be an “illustration of divine irregularities.” Indeed, all the inductions of science, “commonly called ‘the laws of nature,’ are,” he continues, “limited and fragmentary in their range.” “It is, therefore,” says Dr. Christison, “surely clear to all that science is in no position (on any *a priori* grounds) to declare that the immortality of the individual mind is impossible, or is even rendered unlikely, by what we know of “the scheme of nature.”

(3) But science is unfitted to dogmatize as to the problems of life and mind, not only for the negative reason that its discoveries, such as they are, “are fragmentary and limited in their range,” but for the positive reason also that the subject-matter of these discoveries—namely, the phenomena of the sensible universe—let us examine them never so completely, can give us no information with regard to their own sequences and interconnections. Thus, says Dr. Christison, the greatest men of science of to-day have completely thrown over the entire theory of evolution, with regard both to the development of the inorganic universe, and more especially that of living species. Further, when we come

to the origin of life itself, the gap between the living and the lifeless, which ordinary observation detects, instead of growing narrower as scientific research proceeds, is every day exhibiting itself as more and more immeasurable. All the leading scientists of the present day have now agreed, says Dr. Christison, in making what he calls a final "announcement" that we witness in the living "germ-cell" the advent of some mysterious "entity," originating in a world alien to that of material nature, and alone giving life to a small piece of "dead matter," which would otherwise be nothing more than a mere "bundle of crystals."

(4) The most striking proof, however, that life is essentially independent of any organism is to be found in scientific observation of the brains of the higher animals, notably of man, and in concurrent observation of their mental life and behavior. Rash and foolish persons, not many years ago, imagined that they had established an identity or parallelism between the two. But now, says Dr. Christison, "*nous avons changé tout cela.*" The two do, indeed, coincide as a general rule, but only as the movements of a sleeve coincide with those of an arm. The sleeve may be torn away, and the arm remain as active as ever. This contention he supports by a number of examples, of which no more need be said till we come to consider them in detail.

We will now see what the above arguments come to, taking them, so far as is possible, in Dr. Christison's own order. They divide themselves into two groups, the first and the second dealing with the character of science generally, while the third and the fourth deal with special sets of phenomena.

We will start, as he himself does, with "exceptions" to the uniformities of nature, such as—to take two of his own examples—a white crow, or a cat with five legs. Such phenomena, he says, are admitted by every one as being "not in accordance with the usual order of nature," or as being "organic exceptions to nature's apparent rules." Now, such expressions as these may be permissible in ordinary conversation: but when used, as Dr. Christison uses them, in what purports to be serious argument, the only meaning which they possess is fundamentally false and misleading. In its colloquial sense, an exception, no doubt, means something which is not in accordance with the apparent rules of nature; but it means this only because the rules of nature, when referred to thus, are understood in a colloquial

sense likewise. They merely stand for the *usual*, as ordinary experience gives it to us; and an exception to them is merely an occurrence which is at once comparatively rare, and out of our power to predict, because we do not know all its antecedents. But if the rules or laws of nature are understood in any serious sense, what Dr. Christison calls "exceptions" are not exceptions at all. His five-legged cats, and his white crows, though exceptional in his own experience, are not "exceptions in nature." They result from their antecedents in accordance with natural law, just as crows do which are black, or the cat in the nearest kitchen. The only difference between the two kinds of case is this, that the two sets of antecedents have not been entirely similar, though we may not be able to discover what the point of difference is.

Dr. Christison himself seems to anticipate some such criticism as this; and the next section of his argument is apparently designed to meet it. In what has been just urged—this is what his contention comes to—we are merely throwing the exceptional a step farther back; and are thus bringing ourselves to what is really his fundamental proposition. This is that, even if nature be fairly regular to-day, it was at all events a scene or a process of "divine irregularities" in the past, which are, by means of its general regularity to-day, constantly cropping up and asserting themselves in every kind of incalculable fashion; so that, to use Dr. Christison's own phrase, "while we know what we expect, nothing is more certain than that we never know that what we expect will happen." He not only asserts the past irregularity of nature to be a fact; but he maintains that science itself is at length becoming a reluctant witness to it. For this last statement he quotes two authorities, which he invites us to accept as typical of the grounds on which his case is founded. One of these is a passage, taken from a popular magazine, in which Professor Starr Jordan compares geologic science to "a book with half its leaves torn out, and the other half confused, displaced and blotted." The other is a single sentence of Professor Huxley's: "A law of nature is the product of a mental operation upon the facts of nature which come under our observation, and has no more existence outside of the mind than color has."

Now, neither of these two passages—the one being merely a piece of popular rhetoric, the other being the *obiter dictum* of a

thinker whose philosophic instability was proverbial—could be taken as constituting a proof of the self-confessed bankruptcy of science, even if they bore the meaning which Dr. Christison attributes to them. On this point, however, there is no occasion to insist; for the fact is that they mean something wholly different. Professor Jordan's words do not mean that the geological evolution of the earth was less in accordance with law than science has been accustomed to consider it; but merely that the records of it, as accessible to us in geological strata and so forth, are not complete enough to enable us to be certain as to all its details. Dr. Christison's interpretation of the passage would be justifiable only on the assumption that all regularities are limited by our own powers of discovering them; so that, if we possessed only an "incomplete and blotted" copy of Euclid, this would constitute a proof that there was no order in geometry. This is, indeed, the precise assumption made by him—the precise assumption which he imagines himself to have caught Professor Huxley corroborating. But what Huxley really meant was merely a repetition of the assertion, which he launched so constantly at the head of his enemies, the theologians, to the effect that, in calling the uniformities of nature "laws," and thus suggesting to ourselves the idea of an external lawgiver, we are bewildering ourselves with an idea which has no warrant in fact. Instead of casting a doubt on the universal regularity of nature, he was seeking to represent it as a regularity which was self-existent, and required no will outside itself to account for it. Dr. Christison thus quotes Huxley as asserting the very thing that Huxley was denying, and the weakness of the doctrine which he is himself seeking to formulate is evident from his assertion that the so-called laws of nature are merely "condensed statements" of facts that have been "observed" to happen. From this conception of science, the whole essence of science has been eliminated. Science is not, as he says it is, condensed or tabulated observation. Science is essentially, as Herbert Spencer says, tabulated "prevision," which has tabulated observation as its basis. If it were not prevision—if it were a record of observed facts merely, and did not give us certainty before observation was possible—it would be nothing more than a dust-heap of useless gossip: and Dr. Christison's own science of medicine would be the random guesses of a savage. It is, of course, open

to Dr. Christison to deny to all prevision any certainty that rises beyond a guess. All natural certainty and the validity of all induction rest, as Hume says, not on any formal reasoning, but on a "propensity" which inheres in man; but to assert, as Dr. Christison does, that what he calls "exceptional" events, the detailed observations of science, and the recent admissions of scientific men, give us warrant for supposing that the order of nature is less uniform than science has hitherto assumed it to be, is to use hasty and unconsidered language.

The nature of Dr. Christison's onslaught on the authority of science generally is illustrated farther when he proceeds to deal with the details connected more particularly with the question of life and mind. That those who believe the individual organic life to be the evolved product of the general substance of the universe are far from having mastered completely the details of the productive process, is no doubt perfectly true; but Dr. Christison does not content himself with saying that the reality of such a process has not yet been completely demonstrated. He declares that science has demonstrated that no such process is possible. We will glance at the various arguments by which he seeks to support this position; and we shall find that each one of them is either a direct misstatement of fact, or rests on a misconception of the most rudimentary philosophical principles.

He begins by asserting that the evolution of the organic from the inorganic has been robbed, during recent years, even of any antecedent probability, by the fact that men of science have now discarded the idea that such a thing as evolution exists, and are going back to the theory of "divine irregularities." Such a statement as this requires no answer.

Having disposed of the question of probabilities, he proceeds to the question of possibilities; and he argues that the inorganic world has now been shown by science to be, in its very nature, incompetent to produce organisms. For, the inorganic world, he says, is, according to science, made up of "dead" matter, which consists of a multitude of dead self-existing "entities"—in other words, of atoms: these entities being "immortal," and individually incapable of change. Associated with the atomic entities, but in itself wholly separate from them, is another entity, namely energy, which communicates motion to the atoms, but communicates nothing else. Statements such as these, in-

stead of representing scientific thought, represent the very conceptions against which that thought protests. The beginning of Herbert Spencer's "First Principles" shows that, for science, matter and energy alike are merely aspects of a single undivided fact, the absolute nature of which is beyond our mental grasp, but which is, in some sense, however feebly we can imagine it, not universal deadness, but universal mind and action.

Let us now follow Dr. Christison from the possibilities of the question to its actualities. The individual mind appearing first in the germ-cell, the more minutely, he says, organic matter is analyzed, the more immeasurable does the gap between it and inorganic matter appear. Recent discoveries, however, as to the structure and genesis of the atom have shown it to possess certain qualities, at all events, which were supposed, till almost yesterday, to be peculiar to organic bodies; so that, whether the gap in question has been actually bridged or no, it has at all events become narrower than it was, instead of more immeasurable. Here again we are confronted with a direct, though of course an involuntary, misstatement. But, waiving this point, let us follow him in his farther contention that science, when examining the germ-cell on its own merits, has definitely discovered the presence in it of some mysterious agency which obviously belongs to some world other than the scientific universe. The typical scientific authorities which he here cites are as follows: "There is an absolute distinction," says Lord Kelvin, "between crystals and cells. Anything that crystallizes can be made by the chemist. Nothing approaching to the cell of a living creature has ever yet been made." Professor Ira Remsen says that the smallest particles of which the chemist can be directly cognizant "are immense as compared with those of which he has good reason to believe the various kinds of matter to be made up." Professor McKendrick says that "the phenomena of life depend on changes far too small to be seen even by the strongest magnification yet obtained by microscopes." And, finally, Dr. Christison quotes Professor Clerk-Maxwell as asserting that the germ-cell is too small to contain a sufficient number of molecules to account for all the characteristics that are transmitted; wherefore, the germ-cell "cannot be a purely material system." Such are the passages Dr. Christison cites to show that the most recent science has once for all declared that

life neither does nor can arise out of any process belonging to the physical universe. Let us see what these passages really come to. The first passage taken from Lord Kelvin is merely part of an emphatic statement that no one has succeeded hitherto in producing life artificially. Dr. Christison takes this as equivalent to what he calls an "announcement" that, because life, as yet, has never been produced by man, it cannot be produced by nature, and must therefore be supernatural. He might as well say the same thing about gold. His misunderstanding of the other passages quoted by him is more curious still. Professor Remsen, Professor McKendrick and Professor Clerk-Maxwell are all quoted by him as though they were urging a common argument; whereas in reality the first two are directly contradicting the third. Clerk-Maxwell argues that life cannot be wholly material, because the number of particles contained in the single cell are too few to account for the complexity of vital phenomena. Professors Remsen and McKendrick argue that these phenomena pass our comprehension, because the particles which make up the cell, and to whose interaction life is due, are so minute and so incalculably numerous that they must always elude our observation. Dr. Christison seems unaware that the first of these statements, namely Maxwell's, is founded on a view as to atoms which by this time is wholly obsolete. He seems equally unaware that the second in any way differs from it; and that, whilst one of his authorities is worthless as a support for his own theory, the other two assume the very theory he is trying to demolish.

It remains for us to consider the final set of arguments adduced by him—namely those which rest on an examination of the brains of the higher animals. What Dr. Christison maintains that such an examination has proved is, that, though the brain is a mechanism consisting of numerous parts, each of which is adapted to the performance of a special function, these are merely instruments which have been elaborated for the convenience of an independent mind, and have no essential, and indeed no fixed, connection with it; so that, when one or more of them happen to get out of order, or are destroyed, the mind can transfer the duties of these parts to others, and Dr. Christison supports this contention by reference to a number of cases in which parts of the brain have been removed or become diseased, without producing any corresponding mental derangement.

Now, it should be remembered that those who believe that the brain and the mind are inseparable do not maintain that every part of the brain-substance is vital, any more than they maintain the same thing with regard to the body generally. They maintain this with regard to certain parts only. If these be affected, they say, the mind is affected proportionately; and, in order to support their thesis, it is needless to maintain more. Farther, since the vital and the non-vital parts are contiguous, the value of all evidence with regard to cerebral injuries depends on the nicety with which the injured parts are discriminated. Such being the case, the larger number of Dr. Christison's instances are vitiated by the fact that, according to his own admission, they are wholly indeterminate in their character. He speaks of the "extensive destruction" of this or that cerebral area, or of lobes that can be cut off "almost completely," or of other lobes that may be "diseased more or less extensively," without injury to the mental activities with which it has been sought to identify them; but he does not venture beyond these general terms. Instances such as these prove nothing, and we must pass them by, confining ourselves to those with regard to which he speaks more precisely. These are five in number; and, in contrast to his treatment of the rest, he treats these with as much precision as under the circumstances was practicable. They are cases vouched for respectively by Professor Putnam, Dr. Pierce Bailey, Dr. W. Haddon, Professor Andral, and Dr. W. Ireland. In each of these cases there was extensive brain-disease, and we may admit (though even this seems doubtful) that in each case the mind remained normal. But the important point to be here remarked is that the extent of the disease is, in these cases, clearly specified; and in each case it was confined to one-half of the brain, or the band of fibres by which the two halves are joined. Here are the most definite evidences that Dr. Christison is able to produce; and the value of his general argument may be not unfairly judged by them. What then do these five examples prove? The brain is a double organ, like the organs of sight and hearing; and the fact that, when one-half of the brain is injured the mental activities need not be noticeably affected, no more proves that the mind is in any way independent of the brain, than the fact that a man may continue to see and hear, though one eye may be blind and one ear may be

deaf, proves that sight and hearing are independent of eyes and ears.

It has seemed to me worth while to examine Dr. Christison's arguments, because they are, in respect of their general character, common to a very large class of persons, some of them possessing much, and some of them little, knowledge; but all of them bound together by a similar emotional temperament, and—if I may venture to say so—by certain mental and emotional defects. Their main desire is to vindicate the moral and religious value of life, and to discredit at all costs every argument that seems to them fatal to it. But in seeking, as they do, to achieve their object by a rush, or by a short cut, they are doing their own cause more harm than good. I will wind up these observations by asking Dr. Christison, and those who argue as he does, to consider what scheme of things—what sort of universe—would be presented to us, if their premises and arguments should really be accepted by mankind as valid. The number of cells in the brain of the stupidest man probably exceeds that of the entire population of the earth. Of all natural mechanisms, the brain, to which must be added the nervous system, is the most delicate and complicated; and yet, according to Dr. Christison and his friends, most of its delicacy is wasted, and its exquisite mechanism unnecessary. Shakespeare and St. Paul would have been what they actually were, had they had the brains of guinea-pigs, or next to no brains at all. In what light, then, are we to view the fact that some Power or other has been at the pains to develop the human brain as we know it, seeing that, according to Dr. Christison's reasoning, an incomparably simpler apparatus would be no less efficacious? Farther, if this argument for immortality is sound, it applies not to man only, but to every living thing. The bug, the louse, the tapeworm, the germ of every foul disease, is an eternal entity as much as any saint or hero; and the same arguments which give a man hope that he will one day meet again a beloved wife in heaven, must compel him to believe that he will probably encounter also every immortal microbe which may have been a cause of her premature death. There are serious and sober reasons for believing that immortality may be a fact; but they are certainly not the reasons on which Dr. Christison and his friends rely.

W. H. MALLOCK.